REPORT DOCUMENTATION PA

AD-A252 512

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	1992	THESIS/DISSERTATION

4. TITLE AND SUBTITLE
The Relationship of Labor Pain, Medication Useage, and Length of Labor with Childbirth Preparation in Primigravidas

5. FUNDING NUMBERS
1

6. AUTHOR(S)
Lenora Stanley, Major

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
AFIT Student Attending: University of Florida

8. PERFORMING ORGANIZATION REPORT NUMBER
AFIT/CI/CIA- 92-012

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
AFIT/CI
Wright-Patterson AFB OH 45433-6583

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for Public Release IAW 190-1
Distributed Unlimited
ERNEST A. HAYGOOD, Captain, USAF
Executive Officer

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

92 [illegible] 115

14. SUBJECT TERMS	15. NUMBER OF PAGES
	68
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

THE RELATIONSHIP OF LABOR PAIN, MEDICATION USAGE, AND LENGTH OF LABOR WITH CHILDBIRTH PREPARATION IN PRIMIGRAVIDAS

By

LENORA STANLEY

A THESIS PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN NURSING

UNIVERSITY OF FLORIDA

1992

ACKNOWLEDGEMENTS

Heartfelt thanks and appreciation is extended to the members of my supervisory committee, whose confidence and support assisted my completion of this research: Dr. Sharleen Simpson, chairperson, for her never-ending support and guidance, along with lots of patience; Dr. Doris Campbell, for her enthusiasm and continuing interest in the topic; and Dr. Hossein Yarandi, for his expertise and willingness to help.

Many others were involved in the completion of this thesis, and I want to give them my sincere thanks: Dr. Dean Owen, for encouraging me to replicate my original study on a larger scale; Lt. Col. Martha Turner, for her continuous encouragement and interest in the research process, which kept me going on questionable days; Lt. Michelle Schafer and Lt. Sheila Drake, for helping with my data collection; my parents, Norm and Nancy, for their love and support in all I do; and finally to my friends, Susan, Julie, Betty, and Ann, whose wonderful confidence and support got me through it.

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THE RELATIONSHIP OF LABOR PAIN, MEDICATION USAGE, AND LENGTH OF LABOR WITH CHILDBIRTH PREPARATION IN PRIMIGRAVIDAS

By

Lenora Stanley

May 1992

Chairperson: Sharleen Simpson, Ph.D.
Major Department: Nursing

In this study, perception of pain, length of labor, and amount of pain medication required by 64 primigravid women, aged 15-33, who attended varying hours of childbirth classes was measured. Based on the number of hours of childbirth preparation subjects were divided into three groups. No statistically significant differences were found between hours of childbirth preparation and pain perception, length of labor or amount of pain medication used during labor. A clinically relevant finding was that younger, less formally educated women with fewer hours of childbirth education had the longest labors (12.1 hours versus 10.1 and 8.6 hours). There was a statistically significant difference between the groups in formal education, amount of childbirth education, and perceived helpfulness of the breathing/relaxation techniques taught in childbirth classes. Overall,

childbirth pain rated as the most painful stimulus on the Morse Pain Stimulus Scale. These findings support previous research concerning childbirth pain.

CHAPTER I
INTRODUCTION

Education for childbirth has become an exciting specialty of health care. The focus of educational modalities is moving from a study of specific methods to a focus on explaining the need by the scientific method (Nichols & Smith, 1988). Expectant couples are enrolling in prepared childbirth education classes with increasing frequency. However, there still remains a large population who do not seek education for childbirth. Of concern to most couples taking prepared childbirth classes is how to control the pain the mother will experience in labor. A patient's perception of pain, and the fear that the pain holds, often sets the stage for her expectation of her labor (Avery & Olsen, 1987; Chute, 1985; Hassid, 1978; Kitzinger, 1986; Lowe, 1987; Whitchik, Bakal, & Lipshitz, 1989).

Preparing for childbirth through education began as early as the 1920s in Europe (Dick-Read, 1972), but did not become "popularized" in the United States until the publication of Marjorie Karmel's book, Thank You, Dr. Lamaze (Chabon, 1966), first published in 1959. Until the publication of these works, women in the United States and Canada were having heavily anesthetized deliveries where they were unsure of when, how, or what they delivered. The

nursery nurses would put signs on the babies' cribs reading "Does your mother know you're out?" (Bradley, 1981).

After reading the works of Karmel, Lamaze, and Dick-Read, many expectant mothers began to seek other methods of delivering their infants. Often times, even though they explicitly stated they wanted no medication, they were given anesthetics anyway, and awoke several hours later not knowing what had happened (Arms, 1975). These mothers, who received unwanted anesthesia, began to get angry and felt guilty about the way their births had gone. They also suffered through extended periods of time being separated from their infants (Bradley, 1981). All of these feelings led to the current trend for mothers to be prepared for their births and for their husbands to be a significant part of the process.

One of the reasons so many women were anesthetized in labor was due to the excruciating pain they feared was associated with childbirth. Many women just wanted the experience over with and did not care how their infant was delivered. Women who started learning about alternative methods of delivery were also worried about the pain involved, but they chose different ways of dealing with the pain--relaxation, breathing techniques, exercise, and the support of their husbands (Bennett, Hewson, Booker, & Holliday, 1985; Hetherington, 1990). They wanted to be awake, alert, involved, and in control during the delivery

process (Hetherington, 1990; Lowe, 1989; Seguin, Therrien, Champagne, & Larouch, 1989; Sturrock & Johnson, 1990).

The pain of childbirth is significantly more painful for primiparous women than for multiparous women (Melzack, Taenzer, Feldman, & Kinch, 1981). The majority of women attending prepared childbirth classes do so for their first birth experience. These women want to learn as much about their bodies, the baby, and the labor experience as they can before they encounter what may be the greatest challenge of their life--labor and delivery (Crowe & von Baeyer, 1989; Green, Coupland, & Kitzinger, 1990; Marilus, 1979).

Purpose Statement

The purpose of this research was to measure the relationship between the number of hours of prepared childbirth education and pain perception, length of labor, and medication usage in labor with primigravid women.

Hypotheses

The hypotheses for this research were:

1. Women who attend more hours of prepared childbirth classes will have decreased perception of pain as measured on a graphic rating scale than women who attend fewer hours of prepared childbirth classes.

2. Women who attend more hours of prepared childbirth classes will have shorter labors than women who attend fewer hours of prepared childbirth classes.

3. Women who attend more hours of prepared childbirth classes will require less pain medication during labor than women who attend fewer hours of prepared childbirth classes.

Variables

The independent variable was the number of hours of prepared childbirth classes attended by primigravid women, as almost all women have had the opportunity to attend these classes. The dependent variables were subjective measuring of pain perception on a graphic rating scale, length of labor, and number of times medicated, with weighted scoring given to the different medications used (see Appendix C). Start of labor was defined as the time the patient noticed a change in her contraction frequency and intensity and decided to come to the hospital, or from the point when she was 4 cm dilated. In addition, age, military status, and educational level were noted.

Terminology

For the purpose of this research, the following definitions were used.

Childbirth preparation is defined as all organized prenatal classes the pregnant woman attended prior to the start of her labor, including infant care classes and breastfeeding classes.

Military treatment facility is defined as a hospital that treats military personnel and their families.

Epidural anesthesia is defined as a method of pain relief where medication, an anesthetic, is injected into the epidural space of the spinal cord with subsequent numbing and/or cessation of painful stimuli.

Primigravids are defined as women having their first baby; this will also include any women who have had a previous pregnancy which ended in either a spontaneous or elective abortion.

Cesarean section is defined as delivery of the baby through an incision in the abdomen.

Pain perception is defined as the way in which a person experiencing discomfort describes what he/she feels.

Length of labor is defined as the time from the start of regular uterine contractions, which cause the woman to go to the hospital, through the delivery of the placenta, or from the time the patient is 4 cm dilated through the delivery of the placenta.

Pain medication is defined as any medication given to a woman who is in labor to alleviate her discomfort.

Assumptions

Prepared childbirth classes have for many years been based on the assumptions that attendance will result in shorter labors (Bradley, 1981), less perceived pain (Avery & Olsen, 1987; Lamaze, 1965; Melzack et al., 1981), and less use of medication (Geden, Beck, Brouder, Glaister, & Pohlman, 1985; Hetherington, 1990). Grantley Dick-Read

(1972) developed the original assumption that if a woman learns about her body and the labor process, her fear of that process will be decreased. Another assumption of prepared childbirth education is that people who choose to attend classes are usually older and better educated (Sturrock & Johnson, 1990). The presence of the husband with the wife during labor and delivery will assist the woman to have a more positive experience is another assumption (Bradley, 1981). One final assumption is that the untrained, unprepared mother is very tense, uptight and frightened about what is happening to her in labor (Bloom, 1984; Bradley, 1981).

Limitations

The selection of subjects from one institution and the size of the sample will limit the generalizability of the research results. Also, the selection of the subjects from a strictly military population will affect generalizability of results. The results could possibly be generalized for other military facilities.

The childbirth classes the patients attend may not all be the same and the quality of the class may vary from instructor to instructor. Some women may attend more than one set of classes and have an even broader knowledge base than some of the others.

Another limitation of the study could be that pain perception in childbirth is based on the patient's past pain

experience, her concept of birth, her relationship with the baby's father, how she feels about the baby, feelings about herself as a mother, past hospital experiences, and cultural responses to pain, as well as physical sources of discomfort (Durham & Collins, 1986). Some providers may not be as willing to give medication to a patient even though she may be in pain and this could influence the results.

A final limitation is that there are discrepancies between the actual amount of pain felt during labor and the amount of pain recalled several days after the delivery (Crowe & von Baeyer, 1989).

CHAPTER II
LITERATURE REVIEW

Early History of Childbirth

The beginning of midwifery on the island of Borneo, according to legend, started when a husband and his pregnant wife were hunting food in the jungle. He came upon a pregnant big monkey who was in labor and crying out in pain. He observed how the monkey husband took care of his wife through her labor. He saw this as good and did the same thing when his wife delivered (Chabon, 1966). Childbirth to the primitive society was seen as a function of everyday living, and the laboring patient was attended by the village midwife and perhaps her mother. She maintained an unright position as much as possible and would squat when necessary. The discomfort that came with childbirth was expected and understood (Arms, 1975).

Throughout the early centuries, childbirth was experienced in the home under the guidance of midwives who would come when the woman entered labor. She was never left alone to labor--some member of her family was always present. As women would have increasingly difficult births and many women died, the physicians began to take over the delivery of babies. During the late sixteenth century, the Chamberlen brothers, two barber-surgeons, became famous for

being able to deliver the babies no one else could. They would come to the home of the laboring woman and carry a special locked box. In the box was their secret--forceps. The patient would be blindfolded and the instrument used. Then it was replaced in the locked box before they left the home. They kept this secret for three generations (Arms, 1975; Chabon, 1966; Tanzer & Block, 1972).

By the middle of the eighteenth century, childbirth was starting to take place in "lying-in hospitals" under the control of the physicians. Women had become terribly frightened of childbirth, but in Vienna, they were more afraid of dying from childbed fever. There were two clinics where patients were delivered. In the first clinic, the women were delivered mainly by physicians and many died. The second clinic used midwives for the deliveries and few patients died. In 1846, Ignaz Philipp Semmelweis, a physician, took over running the clinic where the physicians delivered the babies. He was alarmed at the difference in childbed fever in the two clinics. He came to the conclusion that the physicians who frequently did autopsies just prior to delivering a baby were carrying the dreaded disease on their dirty hands. He had them start disinfecting their hands with chloride of lime solution, and the deaths started to decline (Arms, 1975; Chabon, 1966; Tanzer & Block, 1972).

Anesthesia

During this time, anesthetics were being discovered as a way to take away the pain of surgery and were hailed as a major scientific breakthrough. Many people were skeptical of using anesthetics on laboring women. Some opponents even went to far as to say that pain was necessary and useful in childbirth (Stampone, 1990). The popularity of using anesthetics during labor and delivery began when Queen Victoria used chloroform during the birth of her eighth child, Prince Leopold (Arms, 1975; Chabon, 1966; Stampone, 1990; Tanzer & Block, 1972) in 1853.

As the popularity of using anesthetics for birth grew, it also caused more births to come under the influence and direction of the physicians, as they were the only ones who could administer the anesthetics and use the forceps the anesthetics eventually required for the delivery of the infant. "Twilight sleep" was introduced in 1902, and it fully cemented the doctor-hospital-childbirth relationship (Tanzer & Block, 1972). The use of these drugs sometimes, instead of making the patient quiet and calm, had the opposite effect of making the woman excited, restless, and a potential harm to herself. The introduction of "birthing jackets" helped keep the patient from injuring herself or the hospital staff (Stampone, 1990).

It was not until the 1950s-1960s that physicians became aware that the placenta was not a barrier between the mother and the infant. Dr. Virginia Apgar, a world renown authority on birth defects, described the placenta as a "sieve" and pointed out that almost everything ingested by or injected into the mother can be expected to reach the fetus within a few minutes (Tanzer & Block, 1972). This explanation helped physicians understand what nurses had already known: The medication given to the mother affects the newborn infant and that was why there were so many blue, limp newborns in the nursery. The nurses and technicians who would notice a difference in the anesthetized infants and in those few whose mother's had natural, unanesthetized childbirth, chose to have their babies naturally (Bradley, 1981).

By the end of the 1960s, physicians were crying out to give less drugs during labor as these drugs were severely affecting the infants. Thus, the push for natural childbirth was begun on a more wide spread basis. It would take days for the infants of anesthetized mothers to behave in the manner a newborn from an unanesthetized mother did immediately after birth (Bradley, 1981; Tanzer & Block, 1972).

Early Childbirth Educators

While American women were struggling for more recognition and civil equality in the late 1800s and early

1900s and readily accepting the use of anesthetics for "painless" deliveries (Chabon, 1966), some European physicians, Dick-Read and Lamaze, were beginning to notice a difference in the ways women from other cultures delivered their infants. As early as the late 1920s, Grantley Dick-Read had noticed these differences. He first started his method of "Childbirth without Fear" in the 1930s and published his first book in 1933. He believed if women knew what to expect, then the pain of labor would be eliminated. He did this by educating them on what to anticipate and how to relax (Dick-Read, 1972).

Another early proponent of early childbirth education was a Russian named Nicolaiev. He was an obstetrician who began using hypnosis to alleviate the pain of labor, while at the same time, allowing the patient to remain an active participant in the birth. This method was abandoned largely due to the difficulty in teaching the method to large groups of people (Chabon, 1966; Tanzer & Block, 1972).

His work was followed closely by Dr. Fernand Lamaze who developed the theory of "Childbirth without Pain." Dr. Lamaze based his theories on the Pavlovian theories of conditioned response and taught women to concentrate on breathing and staying relaxed as a way to alleviate the pain (Karmel, 1981). His theories were also known as the psychoprophylactic method, which proposes to eliminate pain by basing its principles on a knowledge of the origin of

pain, and by using the mind to prevent this pain from occurring (Lamaze, 1965). Also, all of the early childbirth educators believed strongly in educating women about childbirth. Some of the early proponents of natural childbirth neglected the husbands at first, but later found them to be a very valuable asset in the support of the laboring woman (Bradley, 1981; Dick-Read, 1972).

Including the husband in the labor experience was explored by Dr. Bradley (1981). His "husband-coached" method very clearly involves and includes the husband. Of all the people a patient encounters during her labor, the one she knows the best and trusts the most is her husband. Sending the husband to the waiting room only increases the anxiety and fear a patient experiences in labor. Most husbands, even if the couple did not attend a prepared childbirth class, are very helpful in labor and more than willing to assist with the care of their wives (Bloom, 1984). It has been shown that it is a team effort which makes natural childbirth the success it is (Bloom, 1984; Dick-Read, 1972).

Pain Perception

Pain, as perceived in labor, is often part of a vicious cycle known as the fear, tension, and pain cycle (Bean, 1972; Dick-Read, 1972; Nichols & Smith, 1988). Childbirth educators believe that if an expectant couple knows what to expect when the woman goes into labor, it will not be as

frightening and she will not experience as much "pain" as she would had she not increased her knowledge of childbirth. Women who are prepared for childbirth and provided with support during their labor require less pain medication and may, therefore, experience less pain or have less distress from the pain they experience (Roberts, 1983).

Research has shown that even with prepared childbirth instruction, the pain of labor does not go away (Melzack et al., 1981). The patient is simply more aware of how to relieve it by natural methods and her perception of this pain is decreased (Hassid, 1978; Kitzinger, 1986). An unexpected finding in a study by Crowe and von Baeyer (1989) was the inverse relationship between state anxiety and reported pain. They found that the higher a woman's anxiety after attending prepared childbirth classes, the less pain she reported experiencing during labor and delivery. Perhaps because the setting of the prenatal classes allowed for early disclosure of fear and anxiety, and facilitated relief of those fears, the expectant mother was able to experience a positive birth experience (Crowe & von Baeyer, 1989). This finding raises the question of whether just attending a prepared childbirth class and increasing knowledge about the events involved in childbirth can decrease a client's perception of pain.

Tanzer and Block (1972) found "takers" of natural childbirth reported significantly less pain during their

labors than patients who did not. They also noted that patients having natural childbirth required less analgesia than those who did not choose natural childbirth. Their studies, however, did not find a significant decrease in need for pain medication based on the presence of the husband. A poor menstrual history as characterized by irregularity, severe cramping, irritability, and depression has also been shown to cause women to experience more pain during labor (Melzack et al., 1981; Melzack, Kinch, Dobkin, Lebrun, & Taenzer, 1984; Tanzer & Block, 1972).

Maternal Satisfaction

The desire for increased satisfaction in their delivery experiences has led increasing numbers of women to seek out and attend prepared childbirth classes. The process of labor and delivery and the woman's satisfaction with the experience of childbirth has been related to a number of variables including the extent and type of antenatal preparation, perception of the environment in which she gives birth, and the support she receives from her partner, the physician, and the medical staff (Bennett et al., 1985). Some mothers have had the opportunity of having an epidural for analgesia during their labor, and surprisingly, this has not been found to increase satisfaction with their birth experience (Avard & Nimrod, 1985; Bennett, et al., 1985).

These mothers still felt "something was missing" (Poore & Foster, 1985). Mothers may describe their labor as the

most pain ever experienced, but the best experience of their lives. The woman with a highly dosed epidural does not experience the urge to push her baby out and, therefore, does not feel as much a part of its actual delivery. Many patients with this type of epidural will need forcep deliveries (Poore & Foster, 1985). Today, however, more of the epidurals placed for labor do allow the patient to move her legs and feel the sensations needed for pushing. These epidurals remove the pain, but the patient still experiences delivering her baby.

The place where a woman delivers her baby may have a major effect on her perception of pain and the satisfaction she has with her experience. Morse and Park (1988) did a study comparing the perception of pain as experienced by two groups of women. One group gave birth at home, while the other group gave birth in the hospital setting. The patients compared their pain perception of childbirth to eight other situations causing pain (e.g. heart attack, gall stones, eye injury, bad burn, kidney stones, broken bone, migraine, and toothache). The home birth group rated childbirth eighth in pain as compared to the hospital group who rated it third. Two subjects, from the home birth group, were unable to complete the survey since they could not describe what they experienced as "pain."

When comparing groups of women who have attended prepared childbirth classes with those who have not,

definite differences in the terminology used to describe the event are evident. When Tanzer and Block (1972) asked questions about the childbirth experience, those who had not taken classes used negative terms to describe everything, while those who had taken classes used positive words. The perception of the husband's help during labor was even described more negatively by those who had not taken classes.

Today most patients have natural childbirth as opposed to those who are anesthetized and asleep when their children are born. One of the major benefits associated with natural, husband-coached childbirth is the decrease in the number of complications for both the mother and the baby, the shortness of their labor, and increased maternal and paternal attachment to the new baby (Bradley, 1981; Broome & Koehler, 1986). The question of pain in childbirth, however, has never been settled (Tanzer & Block, 1972).

Even with the wide availability of childbirth preparation classes, labor is still regarded as a very painful event. This raises questions about how much education is actually needed to help alleviate the pain of labor, and whether this education actually affects pain perception, length of labor and amount of medication used during labor.

CHAPTER III
METHODOLOGY

The purpose of this research was to measure the relationship between the number of hours of prepared childbirth education and pain perception, length of labor, and medication usage in labor with primigravid women.

Design

An ex post facto design was used for this research. Length of labor, perception of pain, and number of times medicated were the dependent variables. Start of labor was defined as the time a patient noticed a change in her contraction frequency and intensity and decided to come to the hospital, or from the point where she was 4 cm dilated. The length of her labor was from this time until she delivered. The independent variable was the number of hours of attendance at prepared childbirth classes.

Setting

The research site selected was the Maternity Unit of the Air Force Systems Command (AFSC) Regional Hospital Eglin, Eglin AFB, Florida. This Military Treatment Facility serves the military population assigned to Eglin AFB, and living in Okaloosa County. The obstetrical staff deliver approximately 60-80 infants per month. The subjects were

recruited while on the inpatient unit after they delivered their infants during the months of November and December, 1991 and January and February, 1992.

Subjects

The convenience sample consisted of 64 primigravid women aged 15-33. All of the subjects were either active duty military personnel themselves or dependents of active duty or retired personnel. The subjects had the opportunity to attend prepared childbirth classes on base or in the local community.

Patients were excluded if they were scheduled for an elective Cesarean section prior to the onset of labor for a medical problem or presented to labor and delivery with a breech presentation and were then immediately prepared for a Cesarean section. Others excluded from the study were those patients with premature deliveries and patients with severe preeclampsia.

If a subject decided she did not want to complete the study, she was given the opportunity to turn her questionnaire in without filling it out, or she simply did not return the questionnaire. There was no pressure given to complete the questionnaire. Completion and return of the questionnaire implied informed consent.

Instruments

The data were collected by asking patients on the postpartum unit to voluntarily complete a survey form

containing objective questions related to the quality and duration of their labor, how long it lasted, how many times they needed pain relief, and what kind of preparation they had for labor. The survey form used was developed by the investigator in March 1989, and was pilot tested with 25 maternity patients who delivered at another military hospital (see Appendix A). When the investigator developed the survey tool, it was to be given to only primigravid women, however, due to time constraints, it was administered to all of the patients delivering during the data collection period. Only 9 (36%) of the subjects were primigravidas. Again, due to the small sample size, no significant difference in pain perception was found.

The subjects were also asked to complete the Morse Pain Scale (see Appendix B) on which they rated childbirth pain as compared to eight other painful events (Morse & Park, 1988). The Morse Pain Scale was developed by Janice M. Morse using Thurstone's method of paired comparisons. She found that this technique permits the ordering and scaling of stimuli which are close together so the individual being questioned, would normally have difficulty choosing between them. She found that since there is variation in the selection of paired stimuli, the distribution of judgments of each of these stimuli are normally distributed on a continuum and that these distributions overlap. Her studies showed that the painfulness of certain conditions, including

childbirth, can be measured this way (Morse, 1989). In previous studies this scale obtained an alpha coefficient of 0.97 for test-retest reliability, and concurrent validity is reported elsewhere (Morse & Morse, 1988, p. 235).

Pain medication usage was rated on the Pain Medication Scoring Sheet developed by the investigator as a method to weight the effects of different medications given during labor (see Appendix C). The point values given to the individual medications was determined by assigning a score of 1 to the most commonly administered dose of the non-narcotic analgesics used during labor and a score of 2 to the most common dose of the various narcotic medications used during labor. Scores of 4 were given to doses which are considered double the usual dose of a narcotic. This information was obtained from the patient's chart.

Demographic data, including age and military status, as well as the quality of pre-delivery mental and physical status were reported by the subjects on the questionnaire. Length of labor and frequency of medication usage was verified utilizing the medical record. The types of medication received were obtained from the medical record also. Privacy was maintained by using a system of identification numbers.

Data Collection Procedure

As this research involved a questionnaire and chart review only, it was exempt from review by the University of

Florida Institutional Review Board. The appropriate forms were filed. Because the principal investigator is a member of the United States Air Force and being sent to graduate school by the Air Force Institute of Technology (AFIT), the research proposal was submitted to AFIT for review and approval. Once the survey instrument had been approved by the survey control officers at AFIT/XPX and AFMPC/DPMYOS, it was submitted to the Institutional Review Committee at AFSC Regional Hospital Eglin, Eglin AFB, Florida, for approval. Data collection began once the Institutional Review Committee at Eglin AFB approved the research.

Subjects were selected no sooner than three hours after delivery and no later than the second postpartum day, which is the normal day for discharge from the hospital for women who deliver vaginally. Upon selection the subjects were given a questionnaire with objective questions about their labor and their prior preparation for their labor. All subjects completed the same questionnaire. The instrument was called "Survey of Labor Experience" as the investigator did not want to bias the subjects by emphasizing the major variables.

Human Subjects

Subjects were given a letter explaining the study and inviting them to participate in the study (see Appendix D). Return of the questionnaire implied informed consent. All means to insure the protection of the subjects' identity and

right to privacy were taken. All information connecting the subject with her questionnaire was removed as soon as the data were collected. Each subject was thanked for her participation in the study and the principal investigator made sure each subject had an address to contact if they wish to know the results of the research.

Procedure for Data Analysis

Once the surveys were returned, means were computed for length of labor, age of the mother, the number of times she was medicated, and perception of pain; and the results divided into three groups: low (0 - 5 hours), medium (6 - 12 hours), or high (more than 13 hours) attendance at prepared childbirth classes. The length of the regularly scheduled prepared childbirth classes offered to couples is 8 hours. They also attend a 4 hour OB Orientation Class at the beginning of their pregnancy. It was expected that the majority of subjects would fall into the middle group. Subjects who only attended the required classes were in the low group and those who were interested in attending every possible class available to them were in the high attendance group. Using the means from the three groups, low, medium, or high, for the variables, length of labor and number of times medicated, analysis of variance was obtained using a computer program for statistical analysis. The level of significance was set at .05. Demographic data were computed for mean scores to get background information on the

subjects. Ranked data were also analyzed by a computer program for statistical analysis using the Kruskal-Wallis test with the level of significance set at .05.

CHAPTER IV
RESULTS

This research was conducted to measure the relationship between the number of hours of prepared childbirth class attendance and pain perception, length of labor, and medication usage in labor with primigravid women. This research study was conducted using the military population delivering their infants at the Air Force Systems Command (AFSC) Regional Hospital Eglin, Eglin AFB, Florida. A description of the sample demographics and the results of the statistical tests paralleling the hypotheses are presented in this chapter.

Sample Description

A total of 64 subjects were included in the study out of 83 women who initially agreed to participate. Six of the prospective subjects were not included in the sample because they had delivered their second or third baby. The remaining 13 subjects did not return their questionnaire. Since implied consent was inferred by return of the questionnaire, these 13 subjects were not reminded to complete the questionnaire. A few responses were not completed by the subjects, possibly because they did not know the answer to the question. The study had an 83% return rate for completed questionnaires.

The subject's responses were divided into three groups. Group 1 (low attendance) was defined as attending 0-5 hours of childbirth preparation. Group 2 (medium attendance) was defined as attending 6-12 hours of childbirth preparation. Group 3 (high attendance) was defined as attending 13 or more hours of childbirth preparation. All data were computed using the three groups.

The age range of the total group was 15-33. The mean age for Group 1 (n=11) was 21.5 years, with a standard deviation (SD) of 2.9 years. Group 2 (n=32) had a mean age of 24.3 years, with a SD of 3.5 years. Group 3 (n=21) had a mean age of 23.7 years, with a SD of 4.5 years. There was no significant difference in the groups with respect to age (see Table 4-1).

Group 1 had a mean of 12.0 years of formal education, with SD 1.4, Group 2 had a mean of 13.3 years, SD 1.6, and Group 3 had 13.9 years of formal education with a SD of 2.5 years. Group 1 did not have any college graduates with the range of education being 9-15 years. Group 3 had the highest level of education with a range of 11-21. Using the Analysis of Variance Procedure, there was a significant difference in mean years of education ($F = 3.65$, $df = 2$, $p = 0.0317$).

Subjects were admitted to the hospital from 2 hours to 336 hours before delivery. The subject who was admitted for 336 hours spent a week on the antepartum unit. Group 1 was

Table 4-1

Summary Measures of the Variables (n=64)

Variable	Group 1 (n=11)	Group 2 (n=32)	Group 3 (n=21)
	mean (SD)	mean (SD)	mean (SD)
Age	21.5 (2.9)	24.3 (3.5)	23.7 (4.5)
Education	12.0 (1.4)	13.3 (1.6)	13.9 (2.5)
Hours Childbirth Education	2.2 (1.9)	9.7 (1.9)	25.1 (36.9)
Hours Admitted Before Delivery	14.4 (7.9)	17.4 (30.1)	24.6 (71.7)
Time Since Delivery	41.7 (13.4)	35.3 (19.7)	30.5 (16.7)
Patient Perception Length of Labor (Hours)	12.1 (6.2)	11.1 (10.7)	7.8 (5.1)
Documented Length of Labor (Hours)	12.1 (6.9)	10.1 (7.8)	8.6 (3.0)
Fatigue Level	3.8 (1.5)	4.1 (1.8)	4.1 (1.6)
Emotional Status	3.7 (1.5)	3.6 (1.6)	3.8 (1.7)

Note: Group 1 = 0-5 hours of childbirth preparation
Group 2 = 6-12 hours of childbirth preparation
Group 3 = 13 or more hours of childbirth preparation

admitted an average of 14.4 hours before delivery, SD 7.9 hours; Group 2, 17.4 hours, SD 30.1; and Group 3, 24.6 hours, SD 71.7. No significant difference in time admitted prior to delivery was found for the groups.

The emotional status and fatigue level of the subjects prior to the onset of labor was evaluated. Group 1 had a mean emotional status of 3.7, SD 1.5, based on a Likert scale of 1-7, with one being terrified of labor and seven being very, very happy to start labor. Group 2's status was 3.6, SD 1.6, and Group 3's status was 3.8, SD 1.7. No significant difference was found between the groups. The fatigue level of the subjects was also rated on a seven point Likert scale with one being exhausted and seven rested. Group 1 had a mean of 3.8, SD 1.5; Group 2, 4.1, SD 1.8; and Group 3, 4.1 SD 1.6. Again, no significant difference was found between groups.

The hours of childbirth preparation was also evaluated. The groups were divided based on the number of hours attended. The mean for childbirth preparation for Group 1 was 2.2 hours, SD 1.9; Group 2 had 9.7 hours, SD 1.9; and Group 3, 25.7 hours with SD 36.9. One subject in group 3 attended a Vocational Education Program and recorded 185 hours of childbirth preparation. The difference in hours of childbirth preparation among the groups was found to be statistically significant using Analysis of Variance ($F = 5.24$, $df = 2$, $p = 0.0079$).

The subjects were asked what their military status was, whether they attended childbirth preparation classes and where, how much reading they had done prior to labor, who delivered their infant, and what type of delivery they had (see Table 4-2). Group 3 had the most active duty military personnel (28.6%). One-hundred percent of Groups 2 and 3 attended prepared childbirth classes. The majority of the subjects in all three groups attended prepared childbirth classes on base (Group 1, 27.3%, Group 2, 93.7%, Group 3, 61.9%). Most women in all three groups indicated they had read about labor and delivery prior to labor. The majority in each of the groups had read more than 8 sources (Group 1, 36.4%; Group 2, 37.5%; Group 3, 47.6%).

Almost two-thirds of the subjects in each group had some pain medication during labor (Group 1, 63.6%; Group 2, 65.6%; Group 3, 71.4%), and at least 25% stated they did not have sufficient relief of their pain (Group 1, 27.3%; Group 2, 25%; Group 3, 33.3%). None of the subjects in Group 1 were delivered by a Certified Nurse Midwife or had a Cesarean Section. Twenty-five percent of the women in Group 2 and 15.8% of the women in Group 3 were delivered by Certified Nurse Midwives. Approximately 12.5% of the women in Group 2 and 4.7% of the women in Group 3 had Cesarean sections. The remaining subjects delivered their infants vaginally with physicians attending (either Obstetricians or Family Practice Physicians).

Table 4-2

Percentages of Selected Responses to Survey of Labor Questionnaire

Variable	Group 1 (n=11)	Group 2 (n=32)	Group 3 (n=21)
Military Status			
Active Duty	18.2%	6.2%	28.6%
Dependent	81.8%	93.7%	71.4%
Childbirth Class Attendance			
Yes	36.3%	100.0%	100.0%
No	63.6%	0.0%	0.0%
Where Classes Attended			
None	63.6%	0.0%	0.0%
On Base	27.3%	93.7%	61.9%
Off Base	9.1%	6.2%	33.3%
Both	0.0%	0.0%	4.8%
Breathing/Relax Taught in Class Helpful			
Yes	54.5%	90.6%	95.2%
No	0.0%	9.4%	4.8%
N/A	36.4%	0.0%	0.0%
Reading Prior to Labor			
None	0.0%	3.1%	0.0%
1-3 Sources	36.4%	21.9%	19.0%
4-6 Sources	27.3%	28.1%	28.6%
6-8 Sources	0.0%	9.4%	4.8%
More	36.4%	37.5%	47.6%
Technique Most Helpful			
Breathing	9.1%	43.7%	38.1%
Relaxation	18.2%	3.1%	0.0%
Increased Knowledge	0.0%	15.6%	28.6%
Shared Event	18.2%	9.4%	14.3%
Other	18.2%	28.1%	19.0%
None	36.4%	0.0%	0.0%

Table 4-2--continued

Variable	Group 1 (n=11)	Group 2 (n=32)	Group 3 (n=21)
Medication in Labor			
Yes	63.6%	65.6%	71.4%
No	36.4%	34.4%	28.6%
Pain Relief			
N/A	36.4%	34.4%	33.3%
Yes	36.4%	40.6%	33.3%
No	27.3%	25.0%	33.3%
Delivered By			
Certified Nurse Midwife	0.0%	25.0%	15.8%
Obstetrician	63.6%	34.4%	26.3%
Family Practice Physician	36.4%	40.6%	57.9%
Type Delivery			
NSVD	81.8%	78.1%	90.5%
Forceps/Vacuum	18.2%	9.4%	4.8%
C-Section	0.0%	12.5%	4.8%

Note: Group 1 = 0-5 hours of childbirth preparation
Group 2 = 6-12 hours of childbirth preparation
Group 3 = 13 or more hours of childbirth preparation

Subjects were asked to rate their labor experience, expectations for their labor, and the pain they felt during labor on a seven point Likert scale (see Table 4-3). Labor experience choices were from worst experience of life (1) to best experience of life (7). Expectations for labor choices were from much worse than I expected (1) to better than I expected (7). Pain could be rated from mild (1) to severe (7). Mean scores on the Likert scale as rated by women in the three groups were similar. No significant difference was found.

The subjects were asked how helpful the breathing or relaxation techniques they learned in either childbirth classes or during labor were. Women in Group 1 rated breathing/relaxation techniques 3.9, SD 1.8 on a seven point Likert scale, with one being not helpful and seven being very helpful. Women in Group 2 rated the techniques 5.6, SD 1.6, and women in Group 3 rated them 5.7, SD 1.4. There was a significant difference between the groups in how helpful these techniques were (chi square = 8.87, df = 2, p = 0.012).

Hypotheses and Results

Hypothesis Number 1

Women who attend more hours of prepared childbirth classes will have decreased perception of pain as measured on a graphic rating scale than women who attend fewer hours of prepared childbirth classes.

Table 4-3

Summary Measures of Pain Perception (n=64)

Variable	Group 1 (n=11)	Group 2 (n=32)	Group 3 (n=21)
	mean (SD)	mean (SD)	mean (SD)
Labor Experience	4.0 (2.5)	4.1 (2.1)	4.8 (1.5)
Labor Expectation	3.9 (2.2)	4.1 (2.4)	4.7 (1.8)
Pain During Labor	6.1 (1.0)	6.0 (1.1)	6.1 (0.8)
Times Medicated	1.1 (1.0)	1.2 (1.1)	1.2 (1.1)
Medication Score	4.3 (5.3)	3.3 (3.2)	3.2 (2.9)
Breathing/Relax Helpful	3.9 (1.8)	5.6 (1.6)	5.7 (1.4)

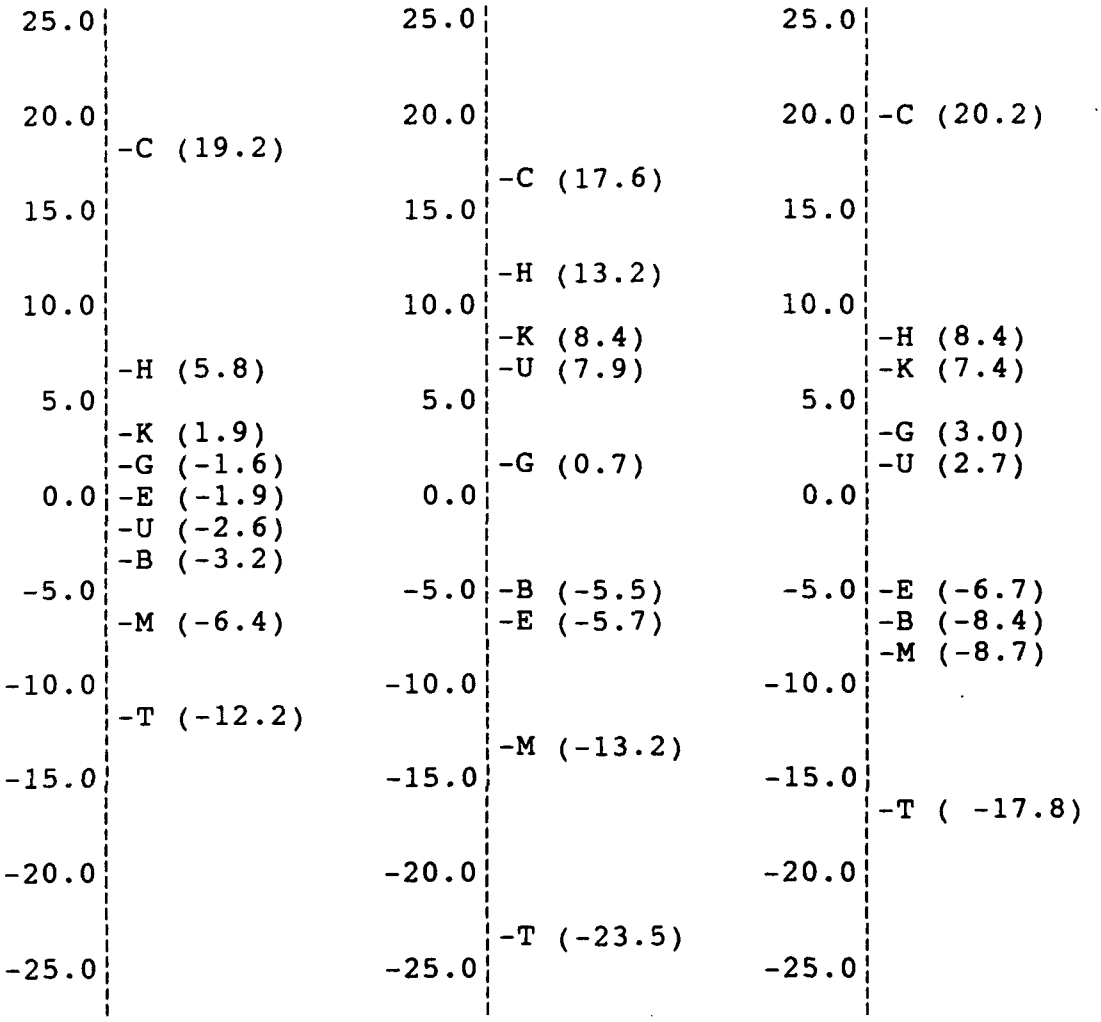
Note: Group 1 = 0-5 hours of childbirth preparation
Group 2 = 6-12 hours of childbirth preparation
Group 3 = 13 or more hours of childbirth preparation

The Morse Pain Stimulus Scale was used to rate the perceived painfulness of childbirth. The results are grouped and the data presented on a graphic scale (see Figure 4-1). Women in each of the three groups rated childbirth as the most painful stimulus. Group 1 rated childbirth 19.2, based on a normal distribution. Group 2 rated childbirth as 17.6, and Group 3 rated childbirth 20.2. The next most painful stimulus according to all three groups was a heart attack. Values for heart attack varied among the three groups. Group 1 gave heart attack a 5.8 rating, while Group 2 gave it a 13.2 and Group 3 a 8.4. All three groups rated toothache as the least painful stimuli followed by a migraine. The ratings, however, differed greatly among the groups. Group 1 rated toothache pain -12.2, Group 2 rated it -23.5, and Group 3 gave toothache a -17.8 rating. A migraine was rated -6.4 by Group 1, -13.2 by Group 2, and -8.7 by Group 3. The other stimuli fell in various places on the graph for each of the three groups.

Wilcoxon/Kruskal-Wallis Tests were computed for the individual pain stimuli. No relationship was found between any of the stimuli and the groups. Thus, hypothesis number 1 was not supported.

Hypothesis Number 2

Women who attend more hours of prepared childbirth classes will have a shorter labor than women who attend fewer hours of prepared childbirth classes.



Group 1 (n=11) Group 2 (n=32) Group 3 (n=21)

Legend: C = Childbirth H = Heart Attack
K = Kidney Stones U = Bad Burn
G = Gallstones E = Eye Injury
B = Broken Bone M = Migraine
T = Toothache
25.0 = Most Painful Stimuli
-25.0 = Least Painful Stimuli

Note: Group 1 = 0-5 hours of childbirth preparation
Group 2 = 6-12 hours of childbirth preparation
Group 3 = 13 or more hours of childbirth preparation

Figure 4-1. Comparison of childbirth pain with eight other painful events.

Length of labor was recorded from the documented length of labor in the medical record. Women in Group 1 had a length of labor ranging from 2.66 hours to 23 hours with a mean of 12.07 hours and SD 6.9 hours. Length of labor for women in Group 2 ranged from 2.75 hours to 43 hours, with a mean of 10.08 hours and SD 7.78 hours. Length of labor for women in Group 3 ranged from 3.95 hours to 13.56 hours, with a mean of 8.64 hours and SD 3.05 hours. An Analysis of Variance showed no significant difference between the three groups for length of labor, thus hypothesis number 2 was not supported.

Hypothesis Number 3

Women who attend more hours of prepared childbirth classes will require less pain medication during labor than women who attend fewer hours of prepared childbirth classes.

The subjects were asked how many times they were medicated for pain during labor. In Group 1, 36.4% of the women had nothing for pain, and 27.3% of the women had pain medication either once or twice. The range for pain medication in Group 1 was 0 to 4 times, with a mean of 1.09 times and SD 1.04 times. Thirty-four percent of subjects in Group 2 had no pain medication and 28.1% had medication only once. The range for pain medication among women in Group 2 was 0 to 3 times, with a mean of 1.21 times and SD 1.12 times. Women in Group 3 received either no medication or medication twice 33.3% of the time, with 23.8% of the

subjects receiving pain medication just one time. The range for pain medication for women in Group 3 was 0 to 4 times, with a mean of 1.23 times and SD 1.13 times.

The amount and type of pain medication received by the subjects was recorded on a medication scoring sheet. Each of the individual doses of medication were given a weighted scoring and the totals added together. The range of scores on the medication scoring sheet ranged from 0 to 18, with a mean of 4.27, SD 5.25 for Group 1. Scores of women in Group 2 ranged from 0 to 12, with a mean of 3.31 and SD 3.18. The scores of women in Group 3 ranged from 0 to 12, with a mean of 3.23 and SD 2.96.

The Analysis of Variance procedure was run to compare pain medication scores for women in the three groups. No significant difference was found between the three groups, therefore, hypothesis number 3 was not supported.

Responses to Open-Ended Questions

The "Survey of Labor" questionnaire included two open-ended questions: "What were your reasons for taking prepared childbirth classes, and were they met?" and "Is there anything else you think might help me evaluate your labor experience?" Their responses were recorded (see Appendix E).

The overwhelming majority of the subjects answering the first question stated they took the classes to learn about labor, to become more knowledgeable, to know what to expect,

to share the event with their husbands, and to learn how to breathe and be relaxed. The subjects who indicated whether or not their reasons for taking the classes were met, all responded affirmatively. Some of the more interesting responses included: "My husband and I wanted to be as relaxed and informed as possible for the birth and prior to the birth," "To learn about labor and delivery and what to expect," "To learn more about what was going to happen, and try to get prepared," "To be prepared--decrease fear know how I could make labor easier," "Know what to do to relax and make it easier. They <u>were</u> met," and "To better prepare my self for motherhood and to give me a better knowledge of what I was undertaking to decrease the fear I had of childbirth and to answer all my questions."

Subjects responding to the second open-ended question responded with very positive statements as evidenced by the following: "My labor was nothing like I had expected. It was easy for me," "My labour experience wasn't what I expected. I thought I would have screamed and cussed at everybody or even drawn blood while holding on to my husband," "Yes, make sure you have a husband that loves you very much and will be there for you to help guide you through this new experience," "It was all worth it," "The pain is already starting to fade from my memory! I never thought it would," "Natural childbirth is wonderful--anyone can do it if they REALLY want to . . .," "Pain goes away

immediately when baby is born. Worth it!!," and "A very supportive and comforting nurse and overall staff helps delivery--for me--to be more than just bearable to pleasant and memorable."

Summary

Three hypotheses were addressed by this research. While there was insufficient evidence to support all the hypotheses, there was a statistically significant difference found in the education level of the three groups of subjects. The amount of childbirth education women in each of the three groups had prior to delivery was also found to differ significantly. There was also a significant difference between women in the three groups in the perceived helpfulness of the breathing and relaxation techniques taught either in their prepared childbirth classes or during labor. A discussion of these and other findings, recommendations for nursing practice, and recommendations for future research will be addressed in the next chapter.

CHAPTER V
DISCUSSION AND RECOMMENDATIONS

Discussion

The purpose of this research was to compare the relationship between attending more hours of prepared childbirth education and its effect on pain perception, length of labor, and medication usage in labor with primigravid women. This study was conducted using the military population located at Eglin AFB, Florida.

The Morse Pain Stimulus Scale was used as a method to assess the perceived painfulness of parturition. All three groups of women in the current study rated childbirth as the most painful stimuli which is different from the findings of Morse and Park (1988), who studied home and hospital deliveries. The hospital group in their study rated childbirth seventh with a heart attack and a bad burn rated as more painful. Additional research by Morse (1989) reported differences in perceived pain between two similar cultural groups in Fiji. Fijian females rated childbirth the most painful while the Fijian Indians rated a heart attack as more painful.

The current study was conducted soon after delivery of the infant when the thoughts and feelings about labor were

still fresh in the minds of the subjects. In contrast, Morse and Park's (1988) study was conducted between several months after birth to more than two years after birth when the thoughts of the actual pain might have faded. The findings of the current study are more consistent with studies by Melzack and his colleagues (Melzack et al., 1984; Melzack, et al., 1981) which list childbirth pain as one of the most severe pains.

Even though it was not found to be statistically significant, the subjects in Group 3 (most preparation) had a documented length of labor of 8.6 hours, while the subjects in Group 1 (least preparation) and Group 2 (intermediate preparation) had documented lengths of labor of 12.07 hours and 10.1 hours. These differences in length of labor may be clinically significant. Shorter labors for prepared women had also been documented by Bradley (1981) who noted that being prepared and having the husband (coach) at the bedside shortened the patient's labor. A larger sample might have resulted in significant findings.

An interesting finding of this research was that the subjects in Group 3 had slightly more doses of pain medication than the subjects in the other two groups. This is consistent with similar findings by Sturrock and Johnson (1990) who thought that the more education the patient had the more aware of the availability of pain medication they

were and, therefore, the more likely they were to request medication without feeling like a failure in labor.

Even though not everyone asked for pain medication, or were able to receive any, the average pain rating was 6.0-6.1 for all three groups. This suggests that all the subjects felt labor was painful to almost the same degree.

The subjects in Group 3 (attending more than 13 hours of prepared childbirth education) had more formal education than the subjects in Group 1 (attending less than six hours of prepared childbirth education). This difference in formal education was also found in a study by Sturrock and Johnson (1990) where they found the attenders of prepared childbirth education classes were older, better educated, and of higher socioeconomic class. Sturrock and Johnson's (1990) research also dealt with a military population, however, the current study did not distinguish whether the subjects were officer or enlisted personnel.

The differences in numbers of hours of childbirth education attended by the women in each of the three groups was also found to be statistically significant. The women in Group 3 were more likely to have attended more hours of classes and to have found the breathing techniques useful. Women in all three groups felt learning the breathing and relaxation techniques was the most important technique learned in class, followed by a combination of techniques.

The overall difference in perceived helpfulness of these techniques was found to be statistically significant.

Two subjective open-ended questions were asked of the subjects. The first question asked was: "What were your reasons for taking prepared childbirth classes, and were they met." The responses to this question showed that the main purpose of prepared childbirth classes, to learn about labor and be more knowledgeable about the experience, was the reason most couples took prepared childbirth classes.

The second open-ended question asked was: "Is there anything else you think might help me evaluate your labor experience?" All subjects who responded to this question spoke positively of the labor experience. A few of the comments related to misunderstandings about pain medication and how it was either not helpful for their pain or was not given when asked for. These positive comments are most interesting since, in a society where having epidural anesthesia for labor has become the norm, epidural anesthesia was not available to these women.

Recommendations for Nursing Practice

The findings of this study indicate that patients find the prepared childbirth classes taught by many maternity nurses helpful. These findings also have some implications for nursing practice. A recent study by Lowe (1991) recommends that the goal of prepared childbirth classes should be to help expectant parents develop competence in

meeting the challenges of parenting, beginning with the birth experience. Nurses can respond to this by trying to elicit an understanding of the process of labor and by trying to get the patients to feel as good about themselves and their upcoming labor experience as possible. No newly delivered mother should ever feel a failure because of something she did during her labor. Coaches need to understand this too, so they do not badger their partner about certain behaviors. Based on the findings of this study and Lowe's (1991) idea of increasing maternal confidence, assessment of this level of confidence becomes important. Nurses can ask the newly admitted labor patient how confident she feels about her ability to perform the techniques learned in childbirth classes. If she does not feel confident during early labor, then the nurse can take that time to reinforce the techniques that were taught before the patient loses control.

Another implication of this study is that instructors of childbirth classes need to devote more time to the topic of pain medication usage in labor, thus allowing the patient to feel free to ask for it. Patients also need to be told why they may sometimes not need anything before they are seven or eight centimeters and, then they find it is too late for medication to be administered safely. The woman who is seven or eight centimeters and is denied pain relief will only remember she did not get anything when she asked,

not the reason she did not get anything for pain. Nurses also need to be better able to evaluate the pain relief their patients are getting and if they are not getting adequate relief, suggest additional medication or other therapeutic measures to relieve the pain. The well-being of the fetus is always a concern to the nursing staff and more emphasis on this in prepared childbirth classes might help the mother understand why she cannot have more medication, or sometimes any.

The responses to the question dealing with reasons for taking prepared childbirth classes and whether expectations were met, imply that the classes are indeed helpful and that nurses need to keep offering them to their patients. Standardization of the content of the classes is a must. A couple of the comments stated more practice of the breathing and relaxation techniques in class would be helpful. Even though childbirth instructors try to emphasize the importance of practicing the breathing and relaxation techniques, many of the patients do not do so until it is time for labor. Stronger emphasis on practicing the breathing and relaxation techniques both in class and at home will help the patients once they start labor.

A final implication for nursing practice would be to develop a method to evaluate the current prepared childbirth program approximately every six months to see if the classes and the current format are continuing to meet the needs of

the population. Frequently, patients are given questionnaires to evaluate the effectiveness of the instructor and the classes at the end of the session, however, the patients will not know if the class was effective until after they have their baby. A specific questionnaire asking about the prepared childbirth classes handed out prior to discharge would help evaluate the hospital-based prepared childbirth program.

Recommendations for Nursing Research

Replication of this study using a much larger population would definitely contribute to the knowledge of how much childbirth education will affect the perception of pain in labor, usage of medication in labor, and length of labor. A sample size of 100 in each group would enable the researcher to be able to compare whether the difference in length of labor is due to the hours of childbirth class or due to chance.

Another recommendation would be to also have the subjects complete the Morse Pain Stimulus Scale portion of the study on more than one occasion to see if the perceived painfulness of childbirth does diminish with time. Having face to face interviews might elicit more information than questionnaires which women fill out themselves. Sometimes it is difficult to know exactly how patients feel about something because of the way a question is worded or because of the choices given as answers.

Controlling for variations in labor could also be undertaken when the study is replicated. This study did not ask if the patient had a spontaneous labor or whether their labor was induced with pitocin, either as an induction or an augmentation. Patients receiving pitocin may respond differently to the questions about pain than those who have spontaneous uterine contractions. Normal labor may result in a gradual increase in intensity of contractions as compared to pitocin uterine contractions which can become strong very quickly. The number of patients in labor at the same time could have an effect on how a patient perceives her labor. Many patients have been frightened when they hear another patient screaming.

Future research in this fascinating area of childbirth preparation is indicated. Comparison of patients receiving an epidural with those who do not could also be a subject for further study, keeping all other variables the same. Childbirth has come a long way from the days when patients were terrified of birth, thought of it as a scene of sickness, and as a time of confusion and distraction (Dye, 1980).

The reasons a husband/coach attends prepared childbirth classes has changed over the past several years. In the past, husbands/coaches would state they were there because their wife/partner made them come, today they are there because they want to know what to expect and how to help

their wife during labor. With responses like these changing over the years, it is important to keep studying pain in labor and how it can be minimized for the patient, while at the same time allowing a safe delivery for both mother and infant.

APPENDIX A
SURVEY OF LABOR EXPERIENCE

Directions: Please answer each of the following questions as you feel they relate to your labor experience. There are no "correct" answers to these questions.

1. What is your age? _____

2. Are you Active Duty Military?

   a. yes
   b. no

3. How many years of school have you completed? (12 = High School Graduate)

9 10 11 12 13 14 15 16 17 18 19 20 More

4. How would you describe your labor experience? (Please circle appropriate number for rating)

1	2	3	4	5	6	7
worst experience of life			OK			best experience of life

5. According to the expectations you had for your labor, it was:

1	2	3	4	5	6	7
much worse than I expected			what I expected			better than I expected

6. How long was your labor? With the start of labor being defined as the point in time when the intensity of your contractions changed and you felt it was necessary to come to the hospital, or from the time you were 4 cm dilated, and ending with the birth of your baby. _____ hours

7. How would you describe the "pain" you felt during your labor?

1	2	3	4	5	6	7
mild			moderate			severe

8. Did you receive any pain medication during your labor?

a. yes
b. no

If yes, how many times were you medicated?

c. 1
d. 2
e. 3
f. more than 3

9. Do you feel you had sufficient relief from the medication you received?

a. yes
b. no

10. How tired/fatigued were you when your labor began?

1	2	3	4	5	6	7
exhausted			neither			rested

11. What was your emotional state at the start of your labor?

1	2	3	4	5	6	7
terrified	scared	anxious	pleased	happy	very happy	very, very happy

12. How many hours before you delivered were you admitted to the hospital? _____ hours

13. Did you attend Prepared Childbirth classes?

a. Yes, if so, where _____
b. No

14. How many hours of prepared childbirth education did you receive? (Please include all classes attended whether OB orientation, prepared childbirth classes, breast feeding classes, or infant care classes) _____.

15. Were the breathing/relaxation techniques you learned in prepared childbirth class or during labor helpful?

a. Yes
b. No
c. Not applicable

16. Please rate how helpful the breathing/relaxation techniques were for you:

1	2	3	4	5	6	7
not helpful	slightly helpful		helpful			very helpful

17. How much reading about labor and delivery did you do prior to going into labor? (source = books, magazines, articles, etc.)

a. none
b. 1-3 sources
c. 4-6 sources
d. 6-8 sources
e. more than 8 sources

18. Was your support person present with you throughout your labor?

a. Yes
b. No

19. How <u>important</u> did you think it was for your support person to be with you during your labor?

1	2	3	4	5	6	7
not at all			ok			very

20. How many hours ago did you deliver? _____ hours

21. Who delivered your baby?

a. Certified Nurse Midwife
b. Obstetrician
c. Family Practice Physician

22. What type of delivery did you have?

a. Normal spontaneous vaginal delivery
b. Forcep delivery/Vacuum Extraction
c. C-Section

23. What techniques learned during childbirth education classes helped you the most during labor?

a. Breathing Techniques
b. Relaxation Techniques
c. Increased knowledge about childbirth in general
d. Sharing the event with your partner
e. Other: _____

24. What were your reasons for taking prepared childbirth classes, and were they met?

25. Is there anything else you think might help me evaluate your labor experience?

Thank you very much for your cooperation with this study.

Major Lenora Stanley
AFIT Student
University of Florida
Gainesville, Florida

APPENDIX B
MORSE PAIN STIMULUS SCALE

IMAGINE how painful each of these conditions must be, and circle the one in each pain that is the most painful. Be sure to answer every item.

---

1. Which is the most painful: a broken bone or a heart attack? (circle one)

2. Which is the most painful: gallstones or childbirth? (circle one)

3. Which is the most painful: an eye injury or a broken bone? (circle one)

4. Which is the most painful: a heart attack or a toothache? (circle one)

5. Which is the most painful: childbirth or a migraine? (circle one)

6. Which is the most painful: a broken bone or a bad burn? (circle one)

7. Which is the most painful: kidney stones or a heart attack? (circle one)

8. Which is the most painful: gallstones or an eye injury? (circle one)

9. Which is the most painful: a toothache or childbirth? (circle one)

10. Which is the most painful: a bad burn or kidney stones? (circle one)

11. Which is the most painful: an eye injury or a toothache? (circle one)

12. Which is the most painful: a migraine or a broken bone? (circle one)

13. Which is the most painful: a heart attack or gallstones? (circle one)

14. Which is the most painful: an eye injury or a bad burn? (circle one)

15. Which is the most painful: gallstones or a broken bone? (circle one)

16. Which is the most painful: a bad burn or a toothache? (circle one)

17. Which is the most painful: childbirth or a heart attack? (circle one)

18. Which is the most painful: an eye injury or kidney stones? (circle one)

19. Which is the most painful: a broken bone or a toothache? (circle one)

20. Which is the most painful: kidney stones or gallstones? (circle one)

21. Which is the most painful: a bad burn or a heart attack? (circle one)

22. Which is the most painful: an eye injury or a migraine? (circle one)

23. Which is the most painful: a migraine or gallstones? (circle one)

24. Which is the most painful: kidney stones or childbirth? (circle one)

25. Which is the most painful: gallstones or a toothache? (circle one)

26. Which is the most painful: a broken bone or childbirth? (circle one)

27. Which is the most painful: a migraine or a heart attack? (circle one)

28. Which is the most painful: childbirth or a bad burn? (circle one)

29. Which is the most painful: a toothache or kidney stones? (circle one)

30. Which is the most painful: an eye injury or a heart attack? (circle one)

31. Which is the most painful: a migraine or a bad burn? (circle one)

32. Which is the most painful: kidney stones or a broken bone? (circle one)

33. Which is the most painful: gallstones or a bad burn? (circle one)

34. Which is the most painful: childbirth or an eye injury? (circle one)

35. Which is the most painful: a toothache or a migraine? (circle one)

36. Which is the most painful: a migraine or kidney stones? (circle one)

Please Complete:

Age:_____

Time in hours since infant born:_____

Number of children you have:_____

Number of hours of Childbirth Education attended before delivery:_____

THANK YOU FOR YOUR HELP.

This instrument used with the permission of Dr. Janice M. Morse, University of Alberta, Edmonton, Alberta, Canada.

APPENDIX C
PAIN MEDICATION SCORING SHEET

Medication	# Times Med Given		Point Value	Sub Total
Phenergan 12.5 mg	_____	X	.5	_____
Phenergan 25 mg	_____	X	1	_____
Vistaril 50 mg	_____	X	1	_____
Vistaril 100 mg	_____	X	2	_____
Demerol 25 mg	_____	X	2	_____
Demerol 50 mg	_____	X	4	_____
Nubain 5 mg	_____	X	2	_____
Nubain 10 mg	_____	X	4	_____
Morphine 5 mg	_____	X	2	_____
Morphine 10 mg	_____	X	4	_____
Stadol 1 mg	_____	X	2	_____
Stadol 2 mg	_____	X	4	_____
Seconal 100 mg	_____	X	2	_____

TOTAL SCORE _____

DOCUMENTED LENGTH OF LABOR _____

APPENDIX D
EXPLANATION OF STUDY FOR PARTICIPANTS

Survey of Labor Experience

Project Director: Lenora Stanley, Major, USAF, NC
Graduate Student, University of Florida
6422 NW 31st Terrace, Gainesville, FL
32606
(904) 375-4086

Dear New Mother,

Congratulations on the birth of your new baby! I know this must be a wonderfully exciting time for you and your family. Because you have just had a baby, you are being asked to participate in a research study. This letter is written to give you information about this study and to answer any questions you may have.

This research aims to explore labor experiences of mothers who have just had their first baby. I am interested in finding out how you thought the experience was now that it is over. You will be free to tell me what you thought of the experience and how it could be made better. Each interview will be strictly voluntary and you may refuse to answer any/or all of the questions at any time. Your participation or non-participation will not affect the care you receive on the postpartum unit in any way.

Your answers will be recorded on the attached questionnaire. You do not need to put your name or any identifying data on the questionnaire.

Information gathered will be used to identify ways nursing personnel can improve the birth experience. The value of this research will be to aid nursing personnel to better understand the needs of laboring women.

This survey instrument has been reviewed by the survey control officers at AFIT/XPX and AFMPC/DPMYOS. It has been approved for use in support of research as part of the thesis requirements for completion of the graduate degree program at the University of Florida.

Please feel free to request the study results or to contact me at the above address/phone number with additional information or questions that were not brought up on the questionnaire.

Sincerely,

LENORA STANLEY, Major, USAF, NC
Graduate Student
University of Florida

Thank you for your cooperation.

APPENDIX E
COMMENTS

QUESTION 24: What were your reasons for taking prepared childbirth classes, and were they met?

The verbatim responses were as follows:

To learn more about labor and the process of delivery.

My husband and I wanted to be as relaxed and informed as possible for the birth and prior to the birth.

To learn about labor and delivery and what to expect.

We were told to go by my doctor, but I'm glad I went; I didn't use all the breathing exercises when I was in labour, but the relaxation help a lot.

No specific reasons.

To find out how the baby was gonna come out, yes, they were met.

Help me understand labor more, yes, they were met.

To learn more about what was going to happen, and try to get prepared.

I took the classes to enable me to have a good labor experience with the least amount of pain. Yes, they were definitely met.

To learn more, yes, they were met.

Wanted to deliver naturally. The childbirth classes helped until I stopped progressing.

To learn what was going to happen.

To be prepared--decrease fear know how I could make labor easier. Yes, they were met.

Breathing techniques. More insight on childbirth in general for my self and my husband. This is our first child.

Being prepared for what happens. And how to handle the different stages. All classes answered all my questions.

Mandatory.

To get prepared.

To help during labor and to know what will happen.

Learn techniques to enable me to cope with labor.

Wanted to do exactly as title suggests best prepare myself for the childbirth experience. In retrospect, it was the most intelligent choice I made as far as childbirth instruction.

To learn more about childbirth and any techniques that would help me through it. Yes.

To learn the most I could about childbirth, and yes, they were met.

Gain knowledge and skills to facilitate easier birth. Yes.

Family Support Hurlbert Field. For a general overview of what to expect.

I was anxious about dealing with the delivery. The classes helped me to know what to expect.

Understand labor. Yes, they were met.

To find out what to expect. Yes, they were met.

Information; breathing and relaxation techniques. Yes, they were met!

To help me understand what I was going to go through. To find different techniques to help me get through childbirth.

So my husband would know how to help me with the relaxation preparation, and breathing techniques needed for labour. And for him to learn and know about the stages and progressive stages of labour and delivery.

To prepare me for childbirth. Yes, they were met.

To increase my knowledge about childbirth, and learning the breathing and relaxation techniques.

To learn how to breath and relax. To give my husband and I a time to be together and learn about our first child.

To know what to expect before and during labor and possible ways to deal with the events. Yes, they were met.

To learn breathing, relaxation techniques and learn about childbirth.

To learn for my baby.

To learn more about childbirth. Yes, they were met.

For better understanding of birthing procedures, relaxation techniques, and breathing techniques. Yes, they were met.

To learn how to relax and breath. Yes, they were met.

1) To see how the hospital that was to deliver my child worked. 2) To prepare my husband for my experience. Yes, my two reasons were met.

Know what to do to relax and make it easier. They <u>were</u> met.

To help labor go more smoothly. Yes, they were met.

Breathing and relaxation; curios of what the classes were about. Yes, they were met.

I wanted to be aware with the things going on around me and with me and the baby. What to expect.

To help me understand what was happening to my body and to help me prepare for delivery--yes, they were met.

This was our first baby; we knew nothing about childbirth, babies or anything else. The classes were very informative and helpful.

To make labor easier and more pleasant.

To learn to breath through labor. Yes, they were met.

Wanted to be as informed as possible when our time came. Wanted to know exactly what would be happening to my body and what I could expect to feel--wanted coach to understand labor process.

Increase knowledge at childbirth, help to diminish anxiety, increase knowledge of hospital's procedures and setup.

To better prepare myself on what to expect. Satisfied with class.

To help cope with the pain. People I had spoken with before said the techniques were very helpful. I had excellent results with the breathing exercises used.

To learn detailed and specific accounts of childbirth in general.

Yes! To better prepare myself and husband and to have an idea of what to expect.

I wanted to learn what to expect during labor and breathing techniques. We spent very little time on breathing techniques.

I wanted to learn how to relax during labor and mainly wanted to know what to expect. The classes were informative. I just wish we practiced the breathing and relaxing techniques a little more in class.

To better prepare my self for motherhood and to give me a better knowledge of what I was undertaking to decrease the fear I had of childbirth and to answer all my questions. Yes, they were met.

QUESTION 25: Is there anything else you think might help me evaluate your labor experience?

The verbatim responses were as follows:

My labor was nothing like I had expected. It was easy to me. If a woman has never had a baby before, she doesn't know what it feels like to love and appreciate the wonders of childbirth.

My husband and I had a video with childbirth instructions from the Lamaze teachings. The most helpful thing I found to be was the relaxation techniques during labor; just knowing and reminding myself that unless I relaxed, it would only be worse.

Listening to the doctors advise on breathing and when to push and when to breath helped a lot.

Well, our childbirth classes were cut short because the baby arrived 19 days early. The classes are scheduled at your 34th week. If you go into labor early, or you're farther along than the Doctor's think you miss out.

My labour experience wasn't what I expected. I thought I would have screamed and cussed at everybody or even drawn blood while holding on to my husband. The part that hurt more was when they were stitching me up, I'd rate that 10 1/2 on the scale, compared to maybe 6 for delivery and labour.

Yes, make sure you have a husband that loves you very much and will be there for you to help guide you through this new experience.

It was all worth it.

Yes, I don't think I would have had such a good experience without learning the breathing and relaxation techniques.

More information on the pain medication. It didn't last long enough.

I delivered my baby very fast. She didn't split me or anything.

The pain during contractions can never really be described because of intensity at different levels.

Yes. Since no two labor experiences are the same, experiencing labor on your own may better aid you in evaluating my labor experience as opposed to not having had experience labor at all.

I had a C-section because I did not progress past 3 cm. My doctor thinks that a cryo surgery may have caused scaring that prevented the cervix to open.

Induction after water breaking, did not spontaneously begin contractions.

The pain is already starting to fade in my memory! I never thought it would happen.

Natural childbirth is wonderful--anyone can do it, if they REALLY want to. I should know--I had a 10 lb 1 oz baby girl with no problem!

The experience was great, the pain was almost unbearable.

To make sure you practice your breathing. It does help a lot. Helps relax you and make sure you have a focal point.

I feel I was very fortunate in having a good and relaxed medical team to help me through my labour and delivery. They all gave me confidence and went along with my wishes to a great extent.

It was great I remember that I wanted pictures taken and I took the camera away from the coach and took pictures my self still up in the stirrup. And the placenta wasn't even pushed out yet. God gave us a healthy Baby Boy!

Experience made much easier with excellent support and encouragement from my doctor and the labor and delivery staff.

Try it.

The composure of your partner can make or break your labor. Breathing and relaxation are equally important.

Pain goes away immediately when baby is born. Worth it!!

The worst part was back labor.

Lamaze classes were excellent and effective for me; I had problems with pushing the baby out because his head was turned the wrong way and he weighed 9 lb 3 oz when we expected average up to 8 lbs.

Women tell so many horror stories about their terrible childbirth experiences, that I was really scared and expected labor to be much worse that it was. I felt a lot of anxiety that was not necessary in my case.

Hospital should be more honest at pain (demoral) medication policy (administering). I believe I was mislead that they would allow some to "take the edge off" when in fact when requested, denied.

My baby was 20 days late. I was induced with Pitocin Tuesday morning with very small amounts . . . Contractions began very quickly with no time in between . . . one pain shot . . . sent home Tuesday evening . . . Pitocin restarted Wednesday morning . . . second shot . . . pushing 1045 . . . delivered 1216 pm. Had 3rd degree tears from the delivery (9 lb 6 oz 21" baby).

Mine was very fast (6 1/2 hours) for a first baby.

I was 42 weeks and the doc put the jell on my cervix because I would not dilate over 2 cm. She watched me throughout the day . . . only mild contractions . . . went home . . . contractions 10 min apart all night long had back labor . . . to hospital at 0400 . . . 4 cm. At 0700 started pitocin and I had severe back labor all day . . . approx 1500 9 1/2 cm . . . to delivery room to push where I pushed for about 40 minutes and she came out. My placenta did not extract so she had to manually get it.

Everyone was really nice and supportive but until you have a baby you really don't realize how much pain there really is. Having your husband there is a real big help.

A very supportive and comforting nurse and overall staff helps delivery--for me--to be more than just bearable to pleasant and memorable.

REFERENCES

Arms, S. (1975). Immaculate deception. New York: Bantam Books.

Avard, D. M., & Nimrod, C. M. (1985). Risks and benefits of obstetric epidural anesthesia: A review. BIRTH, 12(4), 215-225.

Avery, P., & Olsen, I. M. (1987). Expanding the scope of childbirth education to meet the needs of hospitalized, high risk clients. Journal of Obstetrics, Gynecologic, and Neonatal Nursing, 16, 418-421.

Bean, C. A. (1972). Methods of childbirth. New York: Doubleday.

Bennett, A., Hewson, D., Booker, E., & Holliday, S. (1985). Antenatal preparation and labor support in relation to birth outcomes. BIRTH, 12(1), 9-16.

Bloom, K. C. (1984). Assisting the unprepared woman during labor. Journal of Obstetrics, Gynecologic, and Neonatal Nursing, 13, 303-306.

Bradley, R. A. (1981). Husband-coached childbirth. (3rd Ed.). New York: Harper & Row.

Broome, M. E., & Koehler, C. (1986). Childbirth education: A review of effects on the woman and her family. Family and Community Health, 9(1), 33-44.

Chabon, I. (1966). Awake and aware: Participating in childbirth through psychopropylaxis. New York: Dell Publishing.

Chute, G. E. (1985). Expectation and experience in alternative and conventional birth. Journal of Obstetrics, Gynecologic, and Neonatal Nursing, 14, 61-67.

Crowe, K., & von Baeyer, C. (1989). Predictors of a positive childbirth experience. BIRTH, 16(2), 59-63.

Dick-Read, G. (1972). Childbirth without fear (4th Ed.). New York: Harper & Row.

Durham, L., & Collins, M. (1986). The effect of music as a conditioning aid in prepared childbirth education. Journal of Obstetric, Gynecologic, and Neonatal Nursing, 15, 268-270.

Dye, N. S. (1980). History of childbirth in America. Signs: Journal of Women in Culture and Society, 6(1), 97-108.

Geden, E., Beck, N. C., Brouder, G., Glaister, J., & Pohlman, S. (1985). Self-report and psychophysiological effects of Lamaze preparation: An analogue of labor pain. Research in Nursing and Health, 8(2), 155-165.

Green, J. M., Coupland, V. A., & Kitzinger, J. V. (1990). Expectations, experiences and psychological outcomes of childbirth: A prospective study of 825 women. BIRTH, 17(1), 15-24.

Hassid, P. (1978). Textbook for childbirth educators. New York: Harper & Row.

Hetherington, S. E. (1990). A controlled study of the effect of prepared childbirth classes on obstetric outcomes. BIRTH, 17(2), 86-90.

Karmel, M. (1981). Thank you, Dr. Lamaze. (New Ed.). New York: Harper & Row.

Kitzinger, S. (1986). The complete book of pregnancy and childbirth. New York: Alfred A. Knopf.

Lamaze, F. (1965). Painless childbirth: The Lamaze method. New York: Pocket Books.

Lowe, N. K. (1987). Parity and pain during parturition. Journal of Obstetric, Gynecologic, and Neonatal Nursing, 16, 340-346.

Lowe, N. K. (1989). Explaining the pain of active labor: The importance of maternal confidence. Research in Nursing and Health, 12(4), 237-245.

Lowe, N. K. (1991). Maternal confidence in coping with labor: A self-efficacy concept. Journal of Obstetric, Gynecologic, and Neonatal Nursing, 20(6), 457-463.

Marilus, E. (1979). Natural childbirth the Swiss way. Englewood Cliffs, NJ: Prentice-Hall.

Melzack, R., Kinch, R., Dobkin, P., Lebrun, M., & Taenzer, P. (1984). Severity of labour pain: Influence of physical as well as psychologic variables. Canadian Medical Association Journal, 130, 579-584.

Melzack, R., Taenzer, P., Feldman, P., & Kinch, R. (1981). Labour is still painful after prepared childbirth training. Canadian Medical Association Journal, 125, 357-368.

Morse, J. M. (1989). Cultural variation in behavioral response to parturition: Childbirth in Fiji. Medical Anthropology, 12, 35-54.

Morse, J. M., & Morse R. M. (1988). Cultural variation in the inference of pain. Journal of Cross-Cultural Psychology, 19(2), 232-242.

Morse, J. M., & Park, C. (1988). Home birth and hospital deliveries: A comparison of the perceived painfulness of parturition. Research in Nursing and Health, 11(3), 175-181.

Nichols, F. H., & Smith, S. (1988). Childbirth education practice, research and theory. Philadelphia: W. B. Saunders.

Poore, M., & Foster, J. C. (1985). Epidural and no epidural anesthesia: Differences between mothers and their experience of birth. BIRTH, 12(4), 205-212.

Roberts, J. E. (1983). Factors influencing distress from pain during labor. MCN, The American Journal of Maternal/Child Nursing, 8, 62-66.

Seguin, L., Therrien, R., Champagne, F., & Larouche, D. (1989). The components of women's satisfaction with maternity care. BIRTH, 16(3), 109-113.

Stampone, D. (1990). The history of obstetric anesthesia. Journal of Perinatal and Neonatal Nursing, 4(1), 1-13.

Sturrock, W. A., & Johnson, J. A. (1990). The relationship between childbirth education and obstetric outcome. BIRTH, 17(2), 82-85.

Tanzer, D., & Block, J. L. (1972). Why natural childbirth? New York: Schoken Books.

Whitchik, M., Bakal, D., & Lipshitz, J. (1989). The clinical significance of pain and cognitive activity in latent labor. Obstetrics & Gynecology, 73, 35-42.

BIOGRAPHICAL SKETCH

Lenora Stanley received a Bachelor of Science in Nursing degree from Florida State University in December 1979. She was commissioned as a Second Lieutenant in the United States Air Force in July 1980. While stationed at RAF Lakenheath, United Kingdom, she pursued graduate studies offered through Boston University's Overseas Program and received a Master of Education in Counseling degree in 1990.

She was inducted into membership in the Alpha Theta Chapter of Sigma Theta Tau International Honor Society of Nursing. She is active in the Nurses Association of the American College of Obstetricians and Gynecologists. Her professional expertise and interests have concentrated on the areas of maternal and infant nursing, with a focus on labor and delivery. She is currently a Major in the United States Air Force.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Nursing.

Sharleen Simpson, Chairperson
Assistant Professor of Nursing

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Nursing.

Doris Campbell
Associate Professor of Nursing

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Nursing.

Hossein Yarandi
Associate Professor of Nursing

This thesis was submitted to the Graduate Faculty of the College of Nursing and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Master of Science in Nursing.

May, 1992

Dean, College of Nursing

Dean, Graduate School